



NUCLEAR REGULATORY COMMISSION

[NRC-2011-0258]

Proposed Alternative Soils Standards for the Uravan, Colorado Uranium Mill

AGENCY: Nuclear Regulatory Commission.

ACTION: Uranium milling alternative standards.

SUMMARY: By letter dated October 10, 2007, the Colorado Department of Public Health and the Environment (CDPHE)'s, Hazardous Materials and Waste Management Division (the Division) submitted a proposal for alternative standards for soil clean up in four areas of the Uravan Site in Montrose County, Colorado. The Division approved the proposed alternative standards and requested the U.S. Nuclear Regulatory Commission's (NRC or the Commission) concurrence. Colorado's proposed alternative soil standards are to leave the remaining radioactive contamination in place in these four areas without any further remediation. The NRC staff has determined that Colorado's proposal constitutes use of alternative standards. Under Section 274o of the Atomic Energy Act of 1954, as amended (the Act), the Commission must make a determination that such alternatives will achieve a level of stabilization and containment of the sites concerned, and a level of protection for public health, safety, and the environment from radiological and non-radiological hazards associated with such sites, after notice and opportunity for public hearing. Through this action, the Commission intends to fulfill both the notice and opportunity for public hearing provisions of Section 274o.

DATES: Submit comments by **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the Commission cannot assure consideration of comments received after this date.

ADDRESSES: Please include Docket ID **NRC-2011-0258** in the subject line of your comments. For additional instructions on submitting comments and instructions on accessing documents related to this action, see "Submitting Comments and Accessing Information" in the **SUPPLEMENTARY INFORMATION** section of this document. You may submit comments by any one of the following methods:

- **Federal Rulemaking Web site:** Go to <http://www.regulations.gov> and search for documents filed under Docket ID **NRC-2011-0258**. Address questions about NRC dockets to Carol Gallagher, telephone: 301-492-3668; e-mail: Carol.Gallagher@nrc.gov.

- **Mail comments to:** Cindy Bladey, Chief, Rules, Announcements, and Directives Branch (RADB), Office of Administration, Mail Stop: TWB-05-B01M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

- **Fax comments to:** RADB at 301-492-3446.

FOR FURTHER INFORMATION CONTACT: Dennis M. Sollenberger, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: 301-415-2819; e-mail: Dennis.Sollenberger@nrc.gov.

SUPPLEMENTARY INFORMATION:

Submitting Comments and Accessing Information

Comments submitted in writing or in electronic form will be posted on the NRC Web site and on the Federal rulemaking Web site, <http://www.regulations.gov>. Because your comments will not be edited to remove any identifying or contact information, the NRC cautions you against including any information in your submission that you do not want to be publicly disclosed.

The NRC requests that any party soliciting or aggregating comments received from other persons for submission to the NRC inform those persons that the NRC will not edit their comments to remove any identifying or contact information, and therefore, they should not include any information in their comments that they do not want publicly disclosed.

You can access publicly available documents including comments related to this proposed action using the following methods:

- **NRC's Public Document Room (PDR):** The public may examine and have copied, for a fee, publicly available documents at the NRC's PDR, O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** Publicly available documents created or received at the NRC are available online in the NRC Library at <http://www.nrc.gov/reading-rm/adams.html>. From this page, the public can gain entry into ADAMS, which provides text and image files of the NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov.

- **Federal Rulemaking Web Site:** Public comments and supporting materials related to this proposed action can be found at <http://www.regulations.gov> by searching on Docket ID NRC-2011-0258.

Background

Since Section 274 of the Act was added in 1959, the Commission has entered into Agreements with 37 States that relinquished Federal authority. Under these agreements, regulatory authority was assumed by each State under State law to regulate certain radioactive materials within the State. The NRC periodically reviews the performance of the Agreement States to assure compliance with the provisions of Section 274. In 1978, the Act was further amended by adding a new subsection, Section 274o, which required Agreement States to specifically amend their Agreements to regulate uranium mill tailings (11e.(2) byproduct material). Six Agreement States have this authority as part of their Agreements. Under Section 274o of the Act, an Agreement State may adopt site-specific alternative standards with respect to sites at which ores are processed primarily for their source material content or which are used for the disposal of Section 11e.(2) byproduct material. Before the State can adopt alternative standards, the Commission must make the determination that the alternative standards will achieve a level of stabilization and containment of the site concerned, and the alternative standards will provide an adequate level of protection for public health, safety, and the environment from radiological and non-radiological hazards associated with the site. In addition, before making that determination, the NRC must provide notice and an opportunity for public hearing prior to approving the site-specific alternative standards. The Commission is using the notice and opportunity for comment process through this *Federal Register* notice to fulfill both the notice and opportunity for public hearing provisions of the Act.

This approach of allowing interested persons to provide comments before the Commission reaches a determination on the proposed alternative standards was approved by the Commission in the Staff Requirements Memorandum (SRM) for SECY-03-0025, "Utah

Alternative Groundwater Protection Standards; Process for Implementation of the Alternative Standards Provision in Section 274o of the Atomic Energy Act of 1954, As Amended," dated April 21, 2003 (ADAMS Accession Nos. ML032901053 for the SRM, ML032901045 for the SECY paper). The NRC staff is following the same process and has evaluated the Colorado proposal and has made a preliminary determination that the proposed alternative standards for the Uravan site in Colorado are acceptable.

Discussion

The Uravan site began operations in 1912 as a radium mill and later expanded operations to include extraction of other metals including uranium. The Uravan site was a licensed and operating mill at the time of passage of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) (November 1978) making it subject to regulation under Title II of UMTRCA, even though some of the contamination was a result of practices going back to earlier operations. Specific mention of this situation and calls for active programs to address residual contamination during the operational phase are mentioned in NUREG-0706, Final Generic Environmental Impact Statement on Uranium Milling (ADAMS Accession Nos. ML032751663, ML032751667, ML032751669). This site is part of the UMTRCA Title II program administered by the CDPHE through its Section 274b Agreement with the NRC. The Uravan mill ceased operations in 1984 and began decommissioning planning and implementation. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), this site was listed on the National Priorities List (NPL) in 1986. The CDPHE is designated as the Lead Agency at this site under a Memorandum of Agreement signed with Region VIII of the U.S. Environmental Protection Agency (EPA) in 1986.

The site covers over 500 acres, most of which is in very steep, rugged terrain. The remainder of the site is dominated by the San Miguel River Valley. Remedial activities have concluded and the final cap is in place over the disposal areas.

Portions of the site will be titled to the U.S. Department of Energy (DOE) for Legacy Management. Other portions of the site will be transferred to other Federal agencies (e.g., Bureau of Land Management (BLM)) or to a land trust for institutional management. Montrose County Road Y-11 bisects the site.

The CDPHE believes the licensee has remediated the site to the extent practical and has identified four discrete areas that are not in full compliance with the soil remediation standards. The licensee has proposed and CDPHE agrees that no further remediation is warranted for these areas.

This is the first site specific alternative standards to be proposed by an Agreement State (generic alternative standards were proposed and approved for Utah). There is a provision for alternative standards in the introduction to Appendix A of 6 CCR (Code of Colorado Regulations) 1007-1, Part 18 (equivalent to Title 10 of the *Code of Federal Regulations* (CFR), Part 40, Appendix A) which allows for “alternates to the requirements with Commission approval.” This is based on language found in Section 274o of the Act. Section 274o states in part that,

“... the State may adopt alternatives (including, where appropriate, site-specific alternatives) to the requirements adopted and enforced by the Commission for the same purpose if after notice and opportunity for public hearing, the Commission determines that such alternatives will achieve a level of stabilization and containment of the sites concerned, and a level of protection for public health, safety, and the environment from radiological and non-radiological hazards associated with such sites, which is equivalent to, to the extent practicable, or more stringent than the level which

would be achieved by standards and requirements adopted and enforced by the Commission for the same purpose and any final standards promulgated by the Administrator of the EPA in accordance with Section 275. Such alternative State requirements may take into account local or regional conditions, including geology, typography, hydrology, and meteorology.”

Similar language codifying this requirement can be found in 10 CFR 150.31(d).

The NRC’s Office of Nuclear Materials Safety and Safeguards informed NRC’s Region IV in 1988, in a memorandum titled, “Use of Title I Supplemental Standards for Title II” (ADAMS Accession No. ML111670171), that, if a request for alternative standards was to be considered, the application of 40 CFR 192.21, Supplemental Standards, as guidance would be appropriate. The Uravan Consent Decree and Remedial Action Plan approved by the federal district court in 1987, included the possible use of Applicable or Relevant and Appropriate Requirements (ARARs). If alternative standards are agreed to by the NRC, the alternative standards could be used as part of the basis for the State of Colorado and the EPA to proceed with delisting the Uravan site from the NPL.

Four discrete areas of the site (about 40 acres total) could not meet the standard for background level of radium-226 in soil, found in the Colorado Rules and Regulations Pertaining to Radiation Control, 6 CCR 1007-1, Part 18, Appendix A, Criterion 6. This standard is that the background level is not exceeded by more than 5 pCi/g (picocuries per gram) of radium-226 averaged over the first 15 centimeters (cm) below the surface and 15 pCi/g of radium-226 averaged over 15 cm thick layers more than 15 cm below the surface. The four discrete areas are referred to as: the Mill Hillside Area; A-Plant North Area; River Ponds Area; and County Road Y-11. The areas were remediated as best as practical, and the specifics are described in the licensee’s report submitted to the CDPHE (ADAMS Accession No. ML081150505). The licensee proposed to the CDPHE that alternative standards be applied to these four areas of the

Uravan site. The licensee's proposal to the CDPHE was to leave the remaining materials in place and conduct no further remediation.

The CDPHE has accepted the licensee's report and believes the areas were remediated to levels that are ALARA, and are protective of public health. This conclusion is further supported by applying the criteria for supplemental standards in UMTRCA Title I standards in 40 CFR 192.21, and through dose calculations for reasonable future use given the status of the areas after the termination of the specific license and long-term care of the site by DOE. The CDPHE recommended the application of the contemporary dose limit for restricted release found in the License Termination Rule (LTR), which in Colorado regulation is found at CCR (Code of Colorado Regulations) 1007-04, Section 61.3. Since the federal LTR explicitly excludes uranium milling facilities already subject to Appendix A to 10 CFR Part 40 and since the licensee's proposed alternative standards were developed using the Title I supplemental standards that are specific to uranium milling facilities, the NRC staff does not recommend pursuing the use of the LTR standard for this uranium recovery facility.

Challenges to worker safety prevented additional remediation along the cliff face that makes up a majority of the Mill Hillside Area under consideration for alternate standards. Remediation was performed as much as possible and was terminated when safety to workers became too much of a risk, costs continued show diminishing returns, and concern arose that additional removal could cause mass wasting of the cliff face which would cause environmental harm to the riparian area and the San Miguel River. Two other areas, the River Ponds Area and the A-Plant North Area, were cleaned as much as possible prior to annual spring flooding that has since buried the areas under up to 3 feet of sediment (the San Miguel River is a free-flowing river and does not have any dams to control flow). This riparian area now hosts fauna and wildlife that would not be best served if remediation were to continue. The final area, County Road Y-11, has contaminated materials present at depths greater than 3 feet, assuring that

routine maintenance activities of the road can be conducted without creating worker exposure. County Road Y-11 will remain under institutional controls agreed to by the County, BLM, and DOE.

The alternative standards will be protective even if institutional controls fail in the distant future. This is based on two limited assumptions: 1) the cliff face will not be developed for residential construction, and 2) the San Miguel River will not be relocated. Both of these assumptions are realistic.

All four areas have been cleaned to levels that are considered ALARA, will be under permanent institutional control, and meet the EPA supplemental standards requirements in 40 CFR 192.21. Additional cleanup work in the areas would present safety or environmental challenges with little corresponding reduction in dose. Therefore, the NRC staff believes the four areas are candidates for alternative standards.

The NRC staff evaluated Colorado's proposed alternate soil standards for the four discrete areas and the justification for the alternate soil standards for the Uravan Site in Montrose County, Colorado (CO RML 660-02). The individual areas are discussed in more detail in the NRC staff's assessment (ADAMS Accession No. ML11220A308).

Therefore, the NRC staff has made a preliminary determination that the State's proposal to leave the materials in place provides levels of protection to public health and safety and protection of the environment from radiological and non-radiological hazards associated with each of the four areas, that are equivalent to, to the extent practicable, or more stringent than levels which would be achieved by the standards and requirements adopted and enforced by the Commission for the same purpose (specifically the soil cleanup standards for radium) contained in 10 CFR Part 40, Appendix A and the Colorado requirements in 6 CCR 1007-1, Part 18, Appendix A.

Section 274o Hearing for Alternative Standards

The Commission has approved the use of a hearing process similar to the provisions in Subpart H of 10 CFR Part 2 for the “hearing” component required by the last paragraph of Section 274o of the Act. The proposed alternate standards have been reviewed and agreed to by the State of Colorado. A hearing process similar to the provisions in Subpart H is not intended to duplicate the State’s process; rather, it will be used to provide sufficient information for the Commission to make the determination required in Section 274o of the Act.

Pursuant to the hearing process set forth in Subpart H of 10 CFR Part 2, the Commission is requesting information from interested members of the public on the alternative standards proposed by the State of Colorado of leaving the remaining residual soil contamination in place in the four designated areas, in lieu of clean up to the 5/15 pCi/g standard in 10 CFR Part 40, Appendix A, Criterion 6.6. The NRC staff will evaluate the information received and provide the information to the Commission for a final determination. The issue under consideration is:

Do the Colorado proposed alternative soil standards for the four discrete areas of the Uranium site achieve a level of stabilization and containment of the sites concerned, and a level of protection for public health, safety and the environment from radiological and non-radiological hazards associated with such sites, which is equivalent to, to the extent practicable, or more stringent than the level which would be achieved by standards and requirements adopted and enforced by the Commission for the same purpose and any final standards promulgated by the Administrator of the EPA in accordance with Section 275 of the Act?

Environmental Analysis

The environmental impact of a Commission determination that an Agreement State's alternative standards have been found to provide a level of protection that is equivalent to, to the extent practicable, or more stringent than standards promulgated by the NRC or the Administrator of the EPA under Section 275 of the Act is within the generic impact analysis conducted by the NRC and the EPA in promulgating their standards and the requirements (NUREG-0706, "Final Generic Environmental Impact Statement on Uranium Milling," (ADAMS Accession Nos. ML032751663, ML032751667, and ML032751669) and EPA 520/1-83-008, "Final Environmental Impact Statement for Standards for the Control of Byproduct Materials from Uranium Processing" (ADAMS Accession Nos. ML032751396 and ML032751400)). Any site-specific application of alternative standards in Agreement States will be evaluated under the State's environmental assessment required of the State under Section 274o of the Act.

Dated at Rockville, Maryland, this 3rd day of November, 2011.

For the Nuclear Regulatory Commission.

Brian J. McDermott, Director,
Division of Materials Safety
and State Agreements,
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